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| --- | --- |
| **Linear Classifier**      **SVM**  Hard margin:        Soft margin:          Gaussian Distribution        Non-diagonal Covariance      Spectral Theorem | **Logistic Regression**  Maximize likelihood by minimizing:      **Linear Discriminant Analysis**  For classification, predict class k that maximizes:  **Optimization Problem**  Lagrangian  Primal problem  Dual problem  Weak duality  Strong duality  If there exists a saddle point  If , then    Regression          Ridge Regression    Lasso        Risk    Equations  Decision boundary: |